

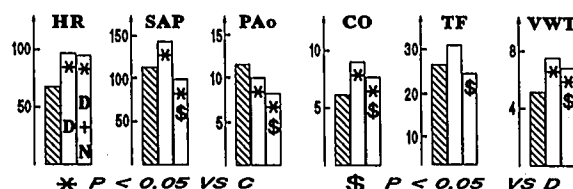
Title : LV SYSTOLIC THICKENING VELOCITY, NOT FRACTION IS AN INDEX OF MYOCARDIAL FUNCTION.
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Left ventricular wall thickening fraction (TF) is a parameter commonly used to analyse dynamic changes in LV function with M-mode echocardiography. Whereas, this parameter is clearly influenced by loading conditions, inotropism, heart rate (HR) and ischemia (1). Conversely, velocity of systolic myocardial wall thickening (VWT), by analogy with velocity of fiber shortening, might be more specific of myocardial contraction than thickening fraction (2). To assess continuous beat by beat regional myocardial contraction, a Doppler microprobe was implanted on the epicardial surface of the reperfused territory at the end of coronary artery bypass surgery and evaluated in 7 patients 10 hours after the surgical procedure.

Following parameters were measured : systolic arterial pressure (SAP)(mmHg, radial catheter); pulmonary artery occluded pressure (PAO)(mmHg, Swan-Ganz catheter) cardiac output (CO, l/min, thermodilution); HR (b/min, ECG); TF and VWT (cm/s)(LV epicardial 10 MHz pulsed Doppler microprobe implanted in the reperfused territory) : before (C) and after inotropic stimulation by Dobutamine (D)(9mcg/kg/h); then, at the same

inotropic level, SAP and LV preload were reduced by Nitrates infusion (D+N). N infusion rate was titrated in order to decrease SAP nearby control value.

Results:



Correlations study : SAP and VWT : $R = .92$ $p < .001$
SAP and TF : $R = .73$ $p < .001$

Discussion : HR during D increased but remained unchanged during D + N infusion. TF slightly increased under pure inotropic stimulation (+12% vs C) and largely decreased after preload reduction (-19% vs C). Conversely, VWT dramatically increased during D infusion (+74% vs C), an effect which was only poorly attenuated by N (+54% vs C). We conclude that this technique allows a continuous beat by beat monitoring of myocardial contraction after coronary artery bypass surgery. VWT is a more sensitive marker of systolic pump function while TF is largely influenced by loading conditions.

References : 1) Sasayama S : Am J Cardiol 38 : 986, 1978 2) Theroux P : Circ Res 35 : 986, 1974.

TITLE : THE COMBINATION OF THORACIC EPIDURAL AND LIGHT GENERAL ANESTHESIA DOES NOT INDUCE MYOCARDIAL SEGMENTAL WALL MOTION ABNORMALITIES

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Thoracic epidural anesthesia (TEA) associated with light general anesthesia (LGA) has been proposed for high risk surgical patients (1). Animal studies have shown that the ratio of endo/epicardial coronary blood flow increases after TEA (2). Intraoperative transesophageal echocardiography (TEE) is an accurate method for detection of segmental wall motion abnormalities (SWMA) indicative of ischemia. We studied SWM with TEE in patients scheduled for vascular surgery to determine the effect of TEA.

With approval of our ethical committee and patients informed consent, we studied 24 consecutive patients. General anesthesia was induced using midazolam, alfentanil and vecuronium (.1 mg/kg) and maintained with midazolam and alfentanil low doses (0.15 µg/kg/h and 15 µg/kg/h respectively). TEA was introduced at T6-7 level by injection of 12.5 ml of 2% lidocaine HCl. A 10 ml/kg/h colloid infusion (Plasmion^R) was administered during the study. Patients were monitored using pulmonary and radial artery catheters, TEE and ECG (CM5). Hemodynamic and echocardiographic data were obtained before and every 10 min for 40 min, and at 60 min after the injection of lidocaine. Two experts independently assessed the short axis TEE images for SWM graded from 1=normal to 5=dyskinesia (3). Data were analysed using ANOVA and paired t test.

Eleven patients had coronary artery disease (CAD) documented either on chest pain, previous myocardial infarction, ECG abnormalities or thallium dipyridamole scintigraphy, and 13 were asymptomatic. Hemodynamic data are reported in table 1. 6 CAD

patients and none of the others had SWMA before TEA. No significant change in SWM was observed after TEA in all the patients (fig 1). These data suggest that TEA associated with LGA does not induce SWMA indicative of ischemia in CAD patients despite a significant decrease in arterial blood and estimated coronary perfusion pressures. This could be explain by a marked decrease in myocardial work and oxygen consumption secondary to cardiac sympathectomy.

TABLE 1 :		T 0	T 20	T 60
HR	CAD	58.5 ± 7.1	53.7 ± 8.3*	53.5 ± 7.7*
(bpm)	ASYMPTO	64.6 ± 12.6	55.7 ± 11.7*	56.1 ± 11.2*
MAP	CAD	83.0 ± 21.1	68.9 ± 22.0*	72.1 ± 17.9*
(mmHg)	ASYMPTO	83.3 ± 26.4	65.9 ± 13.0*	67.1 ± 15.4*
CPP	CAD	47.0 ± 12.1	40.4 ± 12.6*	42.6 ± 12.2*
(mmHg)	ASYMPTO	55.2 ± 21.4	42.3 ± 10.8*	43.5 ± 8.8

* $P < 0.05$ intergroup comparison.

HR: heart rate, MAP: mean arterial pressure, CPP: coronary perfusion pressure (diast.art.pres. - cap. wedge pres.)

- 1- Yeager et al: Anesthesiology 66: 729-6, 1987
- 2- Klassen et al: Anesthesiology 52: 8-15, 1980
- 3- Kumar et al: Am J Cardiol 57: 1232-5, 1986

